

Questions and answers are as follows:

Question #1: What type of contract will be awarded?

Answer: It is anticipated to award a Firm Fixed Price Supply type of contract.

Question #2: Please define the transmit power level?

Answer: The antenna and its associated transmit feed assembly shall be capable of handling a maximum of 80 Watts average and peak power.

Question #3: What part of the receive spectrum must the LNB cover?

Answer: The LNB shall cover, at least, a 500 Mhz segment of the Ka-band satellite communications receive frequency band from 19.7 to 20.2 GHz within the 18.5 - 20.2 GHz receive band specified for the antenna.

Question #4: 90 degrees Kelvin appears to be below what is available with COTS LNBs. Is 120 degrees Kelvin acceptable?

Answer: The LNB noise temperature will be relaxed to 105 degrees K which is commercially available and which would make the receive G/T be no less than 20.8 dB consistent with the specified receive antenna gain and a 105 degrees K LNB.

Question #5: Will NRL provide the enclosure into which the antenna will be mounted?

Answer: The enclosure into which the antenna will be mounted is controlled by another organization and is not under NRL's control. NRL will try to make the enclosure available but cannot guarantee it.

Question #6: Will NRL provide a radome for the antenna?

Answer: No. If a radome is required to meet the environmental and performance specifications when mounted on the vehicle under motion and exposed to the weather and other environmental effects, the contractor shall provide the radome. NRL will provide information on and, if possible, access to the vehicle enclosure so that a suitable radome can be provided.

Question #7: When is the estimated award date for this solicitation?

Answer: Contract award is anticipated to happen on or before 30 September 2001.

Question #8: The solicitation mentions a single deliverable prototype unit. Is it the Government's intent to procure additional units with the completion of a successful prototype evaluation?

Answer: At the present time, there are no commitments to procure additional units. However, the product may be purchased in significant quantities by: a) the US Army and/or; b) the State of Texas for ambulance work. The specified frequencies of operation were chosen to allow this unit to be sold commercially.

Question #9: The first paragraph mentions compliance to the Intelsat specifications in terms of beamwidth and sidelobe control. Can NRL please specify the Intelsat specification this antenna must be compliant to? Various specifications apply to differing frequencies and terminal sizes.

Answer: Intelsat Earth Station Standard (IESS) - G (also Recommendation ITU-R S.580-4 and ITU-R S.465-5) which specifies mandatory transmit and receive sidelobe levels for new antennas in Ku-band (commercial Ka-band satellites did not exist at the time). For antennas with an aperture-over-wavelength ratio (D/λ) ≥ 50 and an angle off boresight (Angle), the sidelobe gain, G, is specified as follows:

Transmit and Receive Antenna Gain in decibels relative to isotropic gain (dBi):

$G = 29 - 25 \log (\text{Angle})$ in dBi,	$100 \lambda / D \text{ deg.} \leq \text{Angle} \leq 20 \text{ degrees,}$
$G = -3.5 \text{ dBi,}$	$20 \text{ degrees} \leq \text{Angle} \leq 26.3 \text{ degrees,}$
$G = 32 - 25 \log (\text{Angle})$ in dBi,	$26.6 \text{ degrees} \leq \text{Angle} \leq 48 \text{ degrees,}$
$G = -10 \text{ dBi,}$	$\text{Angle} > 48 \text{ degrees.}$

Question #10: The second paragraph specifies a high power transmit waveform. Can NRL please identify the HPA output power?

Answer: The antenna and its associated transmit feed assembly shall be capable of handling a maximum of 80 Watts average and peak power.

Question #11: The third paragraph states the terminal shall operate successfully while the vehicle is under motion. Does the pointing accuracy requirement stated on the second page apply to all conditions of improved roads or just the angular motion requirements stated on the second page?

Answer: The requirement applies to all conditions of improved roads, not just angular motion requirements.

Question #12: In paragraph four it is stated that the GPS and heading information will be provided. What is the accuracy of the heading information? How latent will the heading information be? Would there be pitch and roll information provided?

Answer: Heading as well as roll and pitch information are available as digital words from a Honeywell Tactical Advanced Land Inertial Navigator (TALIN Model 2000) inertial navigation system to an accuracy better than 0.1 degrees with an update rate of 50 times per second. The latency is less than the update period of 20 milliseconds.

Question #13: On page two, the gain at transmit and receive are specified. Where is this referenced to? There is no mention of G/T or EIRP, and the LNB noise temperature will be extremely difficult to achieve at the receive frequency. Can NRL provide a transmit EIRP specification and a G/T specification?

Answer: The transmit antenna gain is referenced to the output of the orthomode transducer (OMT) and the receive antenna gain is referenced to the input of the LNB after the OMT and transmit reject filter. The transmit EIRP shall be not less than 63 dB assuming an 80 Watt transmitter. The LNB noise temperature will be relaxed to 105 degree K which would make the receive G/T be no less than 20.8 dB consistent with the specified receive antenna gain and a 105 degree K LNB.

Question #14: On page two, the pointing accuracy is specified. Is this under dynamic conditions?

Answer: Yes, the terminal must operate while the vehicle is in motion.

Question #15: Is there a requirement to provide a radome for this antenna?

Answer: Yes, unless the antenna design can withstand the relative wind and exposure to the weather and other environmental effects while operating with the vehicle in motion and when stored on top of a vehicle in a continuous outdoor environment without requiring a radome. NRL will provide information on and, if possible, access to the vehicle enclosure so appropriate antenna installation characteristics can be determined by the contractor.